PLAN REVIEW CHECKLIST

County: _____ **Design No.:** _____ **By:** _____ **Date:** _____
Project Name: _____

1. GENERAL - ALL PROJECTS

1.1 Title Block

___ "Design For (xx Skew) (RA)(LA)" "Design For Repair To (xx Skew) (RA)(LA)."

___ Structure Type and Size (Ex.: "188'-0 x 40'-0 Continuous Concrete Slab Bridge" or "92.1 m x 7.8 m Continuous Welded Curved Girder Bridge").

___ Span Description (Ex.: "41'-0 End Spans" or "33.050 m,18.600 m, 15.880 m Spans").

___ Sheet Title (Ex.: "General Notes & Bridge Quantities").

___ Station of bridge (mainline) and of feature crossed (Highway, Street, R.R., etc.). Mainline bridge station should agree with envelope. See T.S. & L. for new structure.

___ Turn In Date (Ex.: "December 2010")

___ County

___ "Iowa Department of Transportation - Highway Division"

___ "Design Sht. No. x of x", "File No.", "Design No.".

___ Box around title block.

1.2 General

___ Check plan constructability. Sufficient details included to guide contractor. Staging sequence provided if required.

___ Scale not shown on situation plan or any details.

___ Details consistent with Bridge standard sheets.

___ Non-standard details reviewed with appropriate personnel.

___ Sounding data included per IA/DOT practice (station, offset and surface elevation required.) (new design) Show all borings if 'stick diagrams' required. See [PRCN 1.2(A)].

___ Soils sheets (as provided by Office of Design) included in plan set (new design).

___ Clear border provided around sheet; 5/8" sides, 1/4" top & bottom minimum.

___ Cadd files drawn with the correct levels for printing color plans.

___ Lists of proprietary products specified in plans must have at least 3 products listed. Do not use "or approved equivalent" instead of designating a third product.

___ Project number in the border all sheets for each design. For routes that are not three digits include the leading zero(s) before the route number (e.g. BRF-063-3(46)—38-62).

___ Standard abbreviations used. See [LRFD BDM 11.1.4].

___ Asbestos clearance has been verified for bridge removals.

___ Bent bar details include the note, "Note: All dimensions are out to out. D = pin diameter."

___ Paint color specified by Federal Standard Color Number.

___ For bridges over roadways check with Office of Traffic and Safety if bridge mounted signs will be required.

2. TITLE SHEET - ALL PROJECTS

2.1 General

___ Title sheet conforms to current DOT format posted on Office of Bridges and Structures web site.

___ Correct Project Number (upper right side, right lower border and top left border of sheet).

___ Correct PIN Number (upper right side of sheet).

___ Correct File Number and Project Directory Name (lower border).

___ "Letting Date" filled in with the letting date (upper left border).

___ ~~Value Engineering Note.~~

___ Bridge Standard Plan Box.

___ Boxed note referencing Road Standards on road sheets.

___ Index of Seals (sheet number seal is located on, name and expertise).

___ For projects referencing standard bridge plans include the engineer who signed the standard in the index of seals. See [MM 219].

___ County Name (center of sheet, lower border and bottom left border).

___ Proper sheet heading ("Primary", "Interstate", etc.)

___ Proper 'Work Type'. See Bid Item Book (Ex.: "Bridge New-Steel Girder") (center of sheet, top left border). Use the work type which represents the majority of the work in the project.

___ Verbal location agrees with PSS ("on US151 over N. Fork …") (center of sheet)

___ Iowa R.R./FRA Crossing Number

___ Revision box

___ Traffic data shown on title sheet only unless more than one structure is included in the plans. For multi-structure plans show the traffic data on each individual situation plan.

___ Traffic data includes % trucks.

___ "Sheet No. 1" bottom right border.

___ No phone number on shop drawing 'reviewed by' note.

___ ROW project # - leave blank

___ Specifications series date indicated inside the double lined box under the project title as required by the FHWA.

___ Iowa One Call logo on title sheet.

2.2 Location Map

___ Remove references to scales on plans.

___ North arrow, North is up.

___ Map Township/Range (Ex.: "R-2W", "T-87N").

___ For larger scale urban map, "Part of City of xx".

___ Leader to bridge location with text "Design No. xx".

2.3 Index of Sheets

___ Sheet containing 'Estimated Bridge Quantities' tabulation referenced (tabulation containing bridge quantities).

___ Sheet containing 'Estimated Roadway Quantities' referenced

___ Any tabulations summarizing pay quantities not included in the bridge and road tabulations above referenced.

___ Typically need not itemize bridge sheets; Just indicate "Design No. xx".

___ Correct soil profile sheet naming covention - SPS.xx.

3. FIRST SHEET OF DESIGN - ALL PROJECTS

3.1 General

___ Traffic Control Note, in box.

___ Roadway quantities note.

___ Pollution prevention plan note. See [PRCN 3.1(A)].

___ Repair Project: Structure design history tab. (see standard sheet 1038/M1038).

___ Replacement Project: Site design history tab. (see standard sheet 1038/M1038).

3.2 Specifications 'Note'

___ Correct 'Specifications' note. See [LRFD BDM 11.2.2] note E50_/M50_.

___ Supplemental specifications, developmental specifications and special provisions listed by name. See [PRCN 3.2(A)].

___ Electronic copy of special provisions (if necessary) placed in the special provision turn in folder. See [PRCN 3.2(B)].

3.3 Design Stresses 'Note'

___ Correct 'Design Stresses' note'. See [LRFD BDM 11.2.2] note E50_/M50_.

3.4 Quantity Tabulation

___ Quantity tabulation for design provided on this sheet.

___ Additional tabulated "Total Estimated Bridge Quantities" table for multi-design projects not required.

___ Tabulation title "Estimated Bridge Quantities".

___ Tabulation should not be broken into units (e.g. '4 Piers', '1 Superstructure', etc.).

___ In reinforcing bar lists, for variable length bars, the "varies" designation should be provided in the length column in lieu of an average length.

___ Column in tabulation for 'As-Built' quantities.

___ All Item Codes and Descriptions agree with BIAS. - OK to use 'short' BIAS description and capitalized units in BIAS table.

___ Estimated quantities reflect addition of itemized tables in plans.

___ Modified standard PPC Beam description/mark correct. See [LRFD BDM 5.4.2.4.2]. Reference on framing plan when required.

___ ~~If the district has requested contractor testing of structural concrete use the Quality Management - Structural Concrete (QM-SC) bid items and developmental specification. See [PRCN 3.2(A)].~~ No longer used due to FHWA requirements.

3.5 Estimate Reference Information Notes

3.5.1 All Projects

___ If seeding and fertilizing bid items are less than one acre and are the only erosion control required, they should be made incidental to other construction.

___ Item number and not the item code should designate the estimate reference information notes.

3.5.2 Repair Projects

___ Cost of furnishing and placing sealer in 'Bridge Floor Overlay' (typical) or 'Structural Concrete' item. See [PRCN 3.5.2(A)].

___ Cost of epoxy coated reinforcing steel and Class C Structural Concrete in 'Retrofit Concrete Barrier Rail' item. See [PRCN 3.5.2(B)].

___ Cost of conduit incidental to 'Retrofit Concrete Barrier Rail' item. See [PRCN 3.5.2(C)].

___ 'Temporary Barrier Rail' nominal 12'-6 units [PRCN 3.5.2(D)] or steel [PRCN 3.5.2(E)]. See [LRFD BDM 5.8.1.3].

___ Cost of subdrain, shoring and backfill (backwall repair and barrier rail footings) included in 'Class 20 Excavation.' See [PRCN 3.5.2(F)].

___ Cost of preformed expansion joint filler included in 'Structural Concrete (Miscellaneous).' See [PRCN 3.5.2(G)]

___ Cost of preformed expansion joint filler included in 'Structural Concrete (RCB Culvert).' See [PRCN 3.5.2(H)]

___ Cost of all mechanical splice assemblies included in 'Epoxy Coated Reinforcing Steel' item (Include with black steel bid item if there's no epoxy coated steel bid item). See [PRCN 3.5.2(I)].

3.5.3 New Designs

___ Separate quantities for Structural Concrete, Reinforcing Steel, Epoxy Coated Reinforcing Steel and Structural Steel.

___ Cost of furnishing and placing sealer in 'Structural Concrete (Bridge)' item. See [PRCN 3.5.3(A)].

___ Cost of subdrain and outlet in 'Structural Concrete (Bridge)' item. See [PRCN 3.5.3(B)].

___ Cost of preformed expansion joint filler in 'Structural Concrete (Bridge)' item. See [PRCN 3.5.3(C)].

___ If a light pole blister is included on the bridge include anchor bolts and plates in 'Structural Concrete (Bridge)' item. See [PRCN 3.5.3(D)].

___ If precast deck panel option is used reduce 'Structural Concrete (Bridge)' item. See [PRCN 3.5.3(E)].

___ If precast deck option is used reduce 'Epoxy Coated Reinforcing' item. See [PRCN 3.5.3(F)].

___ Cost of conduit incidental to 'Concrete Barrier Rail' item. See [PRCN 3.5.3(G)].

___ Cost of conduit installation incidental to 'Concrete Barrier Rail' item. See [PRCN 3.5.3(H)].

___ 'Steel Extrusion Joint with Neoprene' note. See [PRCN 3.5.3(I)].

___ Cost of various items in 'Macadam Stone' or 'Concrete' slope protection item. See [PRCN 3.5.3(J)].

___ Cost of standard deck drain in 'Structural Concrete (Bridge)' if no structural steel item or quantity. Included in 'Structural Steel' if this item included exclusive of drains. Use bid item 2499-2300001 (paid for as lump sum) for non-standard deck drains (Aesthetic Deck Drain Standards 1054 and m1054). See [PRCN 3.5.3(K)].

___ Integral abutment PPCB - Cost of bearing pads, S shapes and bars in PPCB items. See [PRCN 3.5.3(L)].

___ Curved sole plates included with PPCB item. See [PRCN 3.5.3(M)].

___ Cost of pile uplift anchors (if used) in 'Piles, Steel, HP . . . ' See [PRCN 3.5.3(N)]; use of detail should be last resort.

3.5.4 Steel Bridges

___ 'Structural Steel' price includes bearings. See [PRCN 3.5.4(A)].

3.6 General Notes

3.6.1 All Projects

___ All applicable 'standard' general notes (per design manual) provided. 'Non-standard' notes checked for need and do not conflict with standard specifications and standard plan details.

___ Limestone aggregate note for District 1 region projects - avoid river gravel as it has iron in it. See ~~[PRCN 3.6.1(A)]~~[LRFD BDM 11.3.2] notes E109/M109.

___ Scrape test note provided if painted steel is to be cleaned (and/or painted) or removed. See [LRFD BDM 11.3.2] notes E225/M225.

___ Bridge plan deck dimension table included for new bridges. See [LRFD BDM 5.2.1.1].

___ Keyway dimension note included. ~~E443/M443 included. See [MM 204]~~See [LRFD BDM 11.5.2] notes E443/M443..

3.6.2 Repair Projects

___ Concrete sealer is to be applied to the vertical face and the top of the existing barrier rails. See ~~[MM 206]~~[LRFD BDM 11.5.2] note E463/M463.

___ 'Removals, As Per Plan' [LRFD BDM 11.5.2] note E440/M440 provides complete listing of work included in item.

___ 'Surface Raise' [LRFD BDM 11.5.2] note E433/M433 not used on projects with existing overlay.

___ A scrape test will not be required on the plans for expansion device repair situations. When removing bridge rails or steel beams that have paint on them, a scrape test is still required. See [LRFD BDM 11.5.2] notes E480/M480 and E481/M481.

3.6.3 New Designs

___ Subdrain note (in general notes listing) is no longer required. Covered on subdrain detail sheet.

___ Do not include concrete sealer note (in general notes listing). Cover under abutment and pier notes as required.

___ If footing will be below water table consider need for 'Excavation and Dewatering' note and companion bid item. Applicable when seal coat required. Alternative is Class 21 Excavation with cofferdam and footing constructed in the dry. See [~~ASD/LFD~~LRFD BDM 6.6.4.1.4].

___ Ensure any geotechnical report requirements, such as waiting period between embankment construction and pile driving and/or pile points, are addressed in general notes ~~[PRCN 3.6.3(A)]~~. See [LRFD BDM 11.3.2] notes E175/M175.

4. SITUATION PLAN

4.1 New Construction

4.1.1 General

___ Location information near title block. Example:
(Relocated) US151 over Maquoketa River
T87N R2W
Section 36
Cascade Twp.
Dubuque County
City of _____
Railroad X-ing: Federal Railroad Administration Identification No. (FRA) and Iowa crossing number.
FHWA # _____ - on all bridges

___ Traffic data shown - only for multiple designs in the same plan.

___ Hydraulic data

___ UP RR bridges, show macadam stone protection on TS&L and assume same during plan development. If UP RR asks us to change to concrete slope protection we will do so, retroactively.

___ Profile data, check for coordination with roadway design.

4.1.2 Plan

___ Shoulder and approach pavement widths and slopes (include foreslope) shown for main and crossing roadway, check for coordination with roadway design.

___ Horizontal curve data, check for coordination with roadway design.

___ Alignments and stationing along CL of approach roadway(and equations), check for coordination with roadway design. Label profile grade line.

___ Proposed ditches and pipes shown, check for coordination with roadway design.

___ Any removals to be performed by bridge contractor designated.

___ 'Face to Face of Paving Notches' dimension shown.

___ Drains called out if not shown in plan view elsewhere. See [LRFD BDM C5.4.2.1].

___ Bridge lighting conduit, pole bases and junction boxes called out on a plan view elsewhere. [See MM 17].

___ Test hole locations if not shown on separate soils data sheet.

___ Slope protection shown and labeled as to type.

___ Overhead clearance points shown.

___ Guardrail shown (if not installed under contract check for appropriate general note).

___ Horizontal clearances, especially for railroads, shown.

___ Existing structure(s) shown.

___ Stream or crossing highway name.

___ Subdrain not required, shown on subdrain details sheet.

___ Pertinent structures and features close enough to influence construction shown (utilities, old structures, etc.).

___ Berm slope location table or recoverable berm location table included if necessary. See [PRCN Appendix A].

4.1.3 Longitudinal Section

___ Pier Class 20 and 21 excavation classification lines, when required.

___ Channel excavation limits w/ slopes, dimensions and elevations.

___ Following elevations labeled and shown:
CL abutment and CL pier along CL of approach roadway
'Low Step' elevation for abutment/pier
Bottom of footing
Bottom of predrilled hole for pile
Top of berm
Stream bed
Extreme or design high water
Scour

___ Location and dimension of minimum clearance under overhead bridges. Clearance meets minimum requirements.

___ Piling description (length and type).

___ For structures with varying pier types (fixed, expansion) pier type is labeled.

___ Slope protection shown.

___ Benchmark

4.2 Repair/Overlay Projects

4.2.1 General

___ Location information near title block. Example:
U.S. 151 Over Maquoketa River
T87N R2W
Section 36
Cascade Twp.
Dubuque County
Maint. No. 3609.9S137
Railroad X-ing: Federal Railroad Administration Identification No. (FRA) and Iowa crossing number.
FHWA # _____

___ Traffic counts for current year.

4.2.2 Plan

___ Alignments and stationing.

___ 'Face to Face of Paving Notches' dimension shown.

___ Bridge and curb/rail width.

___ Highway name shown.

___ Legend of work to be performed.

5. STAKING DIAGRAM - NEW CONSTRUCTION

___ Provide for curved alignments, alignments that do not coincide with CL bridge (dual roadways), bridges with special widths (climbing lanes, tapers, etc.).

___ Dimension gutterline at abutment. Note skew of gutterline at abutment relative to structure baseline (or other logical control line) if appropriate.

___ C.L. of approach roadway shown as the primary staking control line. For curved bridges a chord baseline is the control line. The chord is defined by the intersection of the C.L. of the abutments and C.L. of approach roadway.

6. SUBSTRUCTURE - GENERAL- NEW CONSTRUCTION

___ Pile information for each substructure unit noted adjacent to piling layout. To include type.

___ Service limit state bearing shown for pile, not maximum allowable bearing. See [LRFD BDM 6.2.5].

___ Driving resistance (including resistance in and above the compressible layers) shown for pile if downdrag was considered in design (see soils report). Include [LRFD BDM 11.8.2] note E833/M833.

___ Driving note for piling driven thru scourable materials is included if necessary. See [LRFD BDM 11.8.2] note E834/M834.

___ Unsupported length of pile checked for pile encased with CMP behind MSE walls. (E.g. Maximum depth of bentonite is 15 ft (4.5 m) for HP10x42 (HP250x62). Fill CMP with sand below bentonite).

___ Prestressed concrete pile: Tip-out soil layer blow count 25 to 40 and no boulders.

___ Steel and wood pile lengths rounded to 5' (1.5 m) intervals.

___ Battered and vertical pile for a substructure unit specified same length (typically).

___ ~~If a drilled shaft foundation is used, "Supplemental Specifications for Concrete Drilled Shafts" must be referenced on the first sheet of design under the specifications note.~~ Included in Standard Specifications.

___ Drilled shaft CSL tube layout shown.

___ Column tie substitution note for drilled shafts (circ. ties for spiral) and bar detail included (12" (300 mm) spacing).

___ Anchor bolts set in drilled holes (per standard specifications - ~~2405.09~~2405.03, H, 2) if at all possible. When placing anchor bolts, avoid longitudinal bars in the cap.

___ Anchor bolts are not preset on two adjacent fixed piers.

___ Welding restrictions note included when preset anchor bolts are specified. See [LRFD BDM 11.9.2] note E924/M924.

___ Anchor bolt layout detailed appropriately. See [LRFD BDM 5.7.4.4.2].

___ ~~If least dimension of any concrete unit is greater than 5' (1.5 m), the special provision regarding control of heat of hydration is considered.~~ Check concrete least dimension of substructure units to see if special provisions for mass concrete – control of heat of hydration are applicable. See [MM 211].

___ Show the "Low Step" elevation for all substructure units.

___ If HP10 (HP250) piling are used only one of the sizes is used.

___ Abutment backfill details included.

7. PIER DETAILS - NEW CONSTRUCTION

7.1 General

___ Only one 'set' of pier notes provided in design to avoid inconsistencies.

___ For piers with expansion device include note regarding concrete sealer [PRCN 7.1(A)].

___ On pier plan view and footing plan view dimensions are tied into the bridge construction baseline and the baseline is labeled appropriately. Coordinate with 'Staking Diagram' or 'Foundation Layout.'

___ Pier reinforcing marks conform to The Office of Bridges and Structures pier detailing practice [~~ASD/LFD~~LRFD BDM Table 6.6.4.1.1.2].

___ For the piers, if the top of cap keyway is not shown in the pier cap plan, place a note in the pier notes to refer to the design sheet where the keyway is shown (generally standard sheet 4500/m4500, superstructure details).

7.2 Cap

___ Pier step reinforcement provided when required. See [~~ASD/LFD~~LRFD BDM 6.6.4.1.1.2].

___ Cap reinforcement epoxy coated if under expansion device.

___ Minimum of 5" (125 mm) clear space between rebar provided for tremie.

7.3 Column

___ Column reinforcement epoxy coated if within 25' (7.62 m) clear distance from edge of travel lane or under expansion device [~~ASD/LFD~~LRFD BDM 6.6.4.1.2.2].

___ Corrosion inhibitor in lieu of epoxy coated reinforcing is not permitted [PRCN 7.3(A)].

___ Crashwall for RR overpass (check T.S.L., generally provided if center track to face column is less than 25' (7.6 m))

___ Spiral ties shown for typical circular column (non-spirally reinforced, 12" (300 mm) spacing).

___ Column tie substitution note (circ. ties for spiral) and bar detail included (12" (300 mm) spacing).

___ Spacing of vertical bars in round column provided.

___ Round column diameters, use soft conversion for metric projects (3'-0=910 mm, etc.). Column diameter specified in 6" increments.

___ Keyway shown at top and bottom of column and labeled as to size and type.

___ d1, column bars and d2, column to footing bars, should be same size.

___ Space in the column reinforcing provided to accommodate tremie~~. per standard specifications section 2403.07~~. See [LRFD BDM 6.6.4.1.2.2].

___ If hooked bars are used projecting from columns provide 12" (300 mm) opening for the tremie. See [~~ASD/LFD~~LRFD BDM 6.6.4.1.2.2].

7.4 Footing

___ Perimeter pile battered. [PRCN 7.4(A)]. See [~~ASD/LFD~~LRFD BDM 6.6.4.1.3.1].

___ Note if battered pile used: "Pile dimensions shown are at bottom of footing. Batter piles X:1 in the direction shown".

___ Pile cutoff for battered piling horizontal. See [LRFD BDM 6.2.5].

7.5 Pile Bent

___ Appropriate pile type provided based on blow count. See [LRFD BDM 6.2].

___ Pile size appropriate for unsupported length.

8. ABUTMENT DETAILS - NEW CONSTRUCTION

8.1 General

___ No measurement/payment note regarding subdrain ("Furnishing and placing"). This is covered on subdrain details sheet.

___ Only one 'set' of abutment notes required in design to avoid inconsistencies.

___ On 'Part plan at abutment' and 'Abutment pile plan' beam and pile spacing (as appropriate) is tied into the bridge construction baseline and the baseline is labeled appropriately.

8.2 Stub Abutments

___ Stagger pile between front and back rows to maximize clearance between piles. Behind MSE walls piling may need to be aligned to clear MSE wall straps.

___ Pile batter indicated (typically 4:1).

___ Abutment step reinforcement provided. See [LRFD BDM 6.5.4.2.2].

___ For stub abutments include note regarding concrete sealer. See [PRCN 8.2(A)].

___ For stub abutments behind MSE wall note E55/M55 is included. See ~~[MM 195]~~[LRFD BDM 11.2.2].

8.3 Integral Abutments

___ Is pile pre-bore required and if so noted in the appropriate place in the plans (bid-item included in integral abutment quantities table, on long. section of situation plan).

___ Constraints for use of integral abutments within bridge parameters. See [LRFD BDM Table 6.5.1.1.1].

___ Abutment step reinforcement not required (m and n bars).

___ CWPG Superstructure: Beam end reinforcing bars per design manual shown. See [LRFD BDM Figure 6.5.1.1.1].

9. SUPERSTRUCTURE DETAILS - GENERAL - NEW CONSTRUCTION

9.1 Typical Section

___ Drain details included.

___ Drain note specifies cost in 'Structural Concrete', 'Structural Steel' or deckdrain bid item, as appropriate.

___ Beam spacing is tied into the bridge construction baseline and the baseline is labeled appropriately.

___ Permissible longitudinal construction joint provided for roadway width >60' (18.29m) or if the roadway is tapered. Label "Permissible". See [LRFD BDM 5.2.4.1.2].

___ If anticipated dead load deflection greater than 2" (50 mm), closure pour required with longitudinal joint.

___ Minimum closure pour width shall be the greater of 3 ft (900 mm) or the splice length plus 4" (100 mm). Closure pours should be placed in areas with constant cross slope in the bridge deck. Closure pours over beams should be avoided.

___ If longitudinal construction joint provided (either permissible or mandatory), transverse reinforcing bars are spliced at joint and weight of splice included in quantity.

___ For variable width bridge deck placements the sections should be uniform width. Use permissible longitudinal joints to separate the tapered sections.

___ If transverse reinforcing bars will be > 40' (12.1m) and no longitudinal construction joint is shown on plans, transverse reinforcement splice note included. See Standard Sheet 4310/M4310.

___ Table of 'b2' bars (PPCB) from standard drawing not shown (this is for designer information only).

___ For both standard and non-standard, non-varying bridge widths, show the cross-sectional area of the bridge deck listed on the plans within a box. See [PRCN 9.1 (A)].

___ For bridges with sidewalks, cover plates are detailed at expansion joints to be ADA compliant if necessary.

9.2 Deck Layout

___ Deck placement sequence shown (if required) with applicable notes.

___ Deck placement sequence consistent with IA/DOT practice - address uplift concerns if they exist. Pour positive moment sections first, then negative.

___ Proper transverse joint type shown. Skewed 'Alternate Transverse Construction Joint' shown with stepped joint. See [LRFD BDM Table 5.2.4.1.2 and Table 5.6.2.4.2].

___ Both longitudinal and transverse construction joint details provided if a stepped transverse construction joint is shown.

___ Longitudinal dimensions labeled as 'Out to Out of Slab'.

___ Longitudinal construction joint shown (if applicable)

___ Transverse and longitudinal slab reinforcing layout details adequate.

___ For variable width bridges, vary lap splice for transverse bars rather than vary length of transverse bars. However, minimize number of different bar lengths.

9.3 Slab Elevation Layout

___ Format of diagram consistent with IA/DOT practice.

___ Spacing provided for deck elevations along C.L. of beam (8' to 10' (2.4 m to 3.0 m) range preferred).

___ Steel bridge deck elevations correspond with the deflection information provided.

___ Transverse elevations provided at the centerline of bearings but not the centerline of pier, (unless the centerline of the bearings corresponds with the centerline of the pier).

___ Deck elevations provided along the centerline of approach roadway, all beam lines, each gutter line and longitudinal construction joint if required.

___ Included beam line haunch elevation sheet for both PPCB and steel girder bridges.

10. SUPERSTRUCTURE DETAILS - CWPG - NEW CONSTRUCTION

10.1 Framing Plan

___ Dimensions adjusted for slope - element lengths only - not horizontal lengths.

10.2 Girder Details

___ For metric plates, main steel plates (top flange, web and bottom flange) should be shown in hard metric dimensions. All other misc. plates (stiffener plates, splice plates, etc.) should be shown in soft metric sizes rounded to the nearest tenth of a millimeter.

___ Shear stud diameter 7/8" (22.2 mm).

___ Part plan view of stiffener details provided.

___ Weld for flange to web noted as "Continuous Submerged Arc Welding".

___ Shear stud height varies with top flange thickness. See [LRFD BDM 5.5.2.4.1.8].

___ Intermediate girder termination crossbeam has shear studs (dropping girder line).

___ Weathering steel notes included for weathering steel bridges. See [LRFD BDM 11.9.2] note E930/M930.

___ Flange width increase clipped 2.5:1 at bolted splice, ground to radius at weld.

___ If flange plate size is increased exclusive of a bolted connection, request that analysis be made using larger plate between bolted connections and add appropriate note regarding substitution. See [LRFD BDM 5.5.2.4.1.6].

___ Top/bottom flange radiographed note for butt splice - label tension and compression zone. See [LRFD BDM 5.5.2.4.2].

___ Proper cross sectional dimensions used for metric steel elements. See [LRFD BDM 5.5.2.4.1.2].

___ A325 7/8" (22.2 mm) diameter bolts are typical.

___ Preferred maximum girder length between splice points 120' (36.6 m).

10.3 Welding Details

___ Proper intermediate diaphragm stiffener details for fatigue limit state used. See [LRFD BDM 5.5.2.4.1.11].

___ Add a third product per FHWA requirements to the flange deflector details on standard sheet 1021/M1021. "… Three products meeting …and Crafco Roadsaver Silicone."

10.4 Superstructure Details

___ Flange deflector detail provided if necessary. See [LRFD BDM 5.5.2.4.2].

___ Correct bearing specified based on reaction.

___ Table of rocker and expansion joint settings included.

___ For bridges with closure pours the bracing in the bay to have the closure pour is to be installed after the second stage has been poured and prior to placing the closure pour. The bolt holes shall be field drilled in the cross bracing members to provide allowances for fit up of the diaphragms. See [LRFD BDM 5.2.4.1.2].

___ Shop welded splice note included. See [LRFD BDM 5.5.2.4.2].

___ Temporary slab overhang detail included. See [CADD M0144].

10.5 Deflection Diagram

___ Format of camber, haunch and dead load deflection diagrams consistent with Design Manual. Typically interior girder only shown unless unusual circumstances.

___ Label "Girders As Fabricated With Webs Horizontal."

___ For 'Girders As Fabricated' diagram 'Keep' dimensions (measured from 'chord between abut. bearings') provided at all bearings (including '0 Keep' noted at abutments).

___ Dimension from 'chord between abutment bearings' to 'top of web' shown as an individual value at the midpoint and ends of each girder segment (segment is considered end to splice or splice to splice). See [PRCN 10.5(A)].

___ Dimension from both 'chords' to 'xx of web' shown at midpoint of parabolic camber.

___ Moment and reaction table, consistent with IA/DOT practice, included in plans.

___ Locations of the dead load deflection values should correspond to the deck elevation locations.

11. SUPERSTRUCTURE DETAILS - PPCB - NEW CONSTRUCTION

11.1 Framing Plan (If Provided)

___ Dimensions adjusted for slope - element lengths only - not horizontal lengths.

11.2 Superstructure Details

___ Appropriate intermediate diaphragm type used (concrete for road overpass, steel all others); steel for bulb tee beams.

___ Intermediate diaphragm details, do not use the note from standard sheet 1036/M1036 ("At locations under longitudinal bridge floor . . . ") when a longitudinal joint is not permitted.

___ Intermediate diaphragms shall be placed at the ¼ points when using a beam span greater than 120 ft. See [LRFD BDM 5.4.2.4.2].

___ Slab thickness of 8" (200 mm). See [LRFD BDM 5.2.1.1].

___ Deck hanger note included. See [LRFD BDM 5.4.2.4.2 and 11.3.2] note E202/M202.

___ For bridges including a precast deck panel option check the use of precast deck panels is allowed and include the precast note below the Total Estimated Quantities Tabulation. See [LRFD BDM 5.2.4.3].

___ For prestressed concrete beam bridges with intermediate concrete diaphragms, the diaphragm shall not be placed in the bay where the closure pour is to be placed.

___ For prestressed concrete beam bridges with steel intermediate diaphragms, the diaphragm bolts used in connecting the channel to the bent plate shall remain loose until the second stage has been poured then tightened before the closure pour.

___ Appropriate bearing used. See [LRFD BDM 5.7].

___ Appropriate deck concrete strength for longer span BTB, BTC and BTE beams. See [LRFD BDM Table 5.4.2.4.1.2-2].

___ Appropriate deck placement note. See [LRFD BDM 11.9.2] note E926/M926. ~~See [MM 202].~~

11.3 Beam Details

___ Current 'Strand Projection at Beam Ends' detail used, with strands upward.

___ Non-Standard beam details/notes reviewed with appropriate staff for need and adequacy.

___ Shear reinforcing modifications provided for haunch >2" (50 mm).

___ Required vent holes provided (stream crossings, per T.S.L.)

___ General notes from the beam standard sheets starting with 'If . .' reviewed for applicability. If applicable, delete the 'implied option' portion of the note (Ex. "If the steel diaphragm option is allowed and used"). If not applicable, note is not used.

___ General note from the beam standard sheet "The portions of the prestress beams that are to be embedded . . ." reviewed for applicability (abutment?, pier?)

___ Modified standard beam mark is consistent with bid item description. See [LRFD BDM 5.4.2.4.2].

___ Concrete sealer details included for the ends of PPC beams under bridge joints (typically for stub abutments), see IM 570 and standard sheets 1036/M1036.

___ Embedded deck hanger note ~~E202/M202~~ included. ~~See [MM 197].~~ See [LRFD BDM 11.3.2] note E202/M202.

12. DETAILS - REPAIR/OVERLAY PROJECTS

12.1 General

___ Existing conduit shown and labeled on typical section.

___ Typical section indicates cross slope of deck.

___ Adequate details provided to define location and scope of concrete repair work.

___ Overlay: Correct number of drains noted for 'Floor repair detail at drains.'

___ Overlay: Classification line shown correctly for bridges with existing overlay. Classification line will be 1/4" (5 mm) below the top of the original bridge deck.

12.2 Temporary Barrier Rail

___ Reduced width signing plan provided if lane width less than 14'-6 (4.42 m). See [LRFD BDM 9.1.8.2].

___ 'F-Shape' used for minimum lane 12.42' (3.78 m) interstate mainline, 10'-6 (3.2 m) primary. H-Pile section used when these minimums cannot be provided.

___ Traffic lane and work area widths shown on rail layout plan. Correct lane width shown on standard sheet 1049/M1049 note. Traffic lane width should be noted as 'minimum.'

12.3 Backwall Repair/Barrier Rail Footings

___ Detail specifying limits of Class 20 excavation and backfill materials provided.

___ Backwall: Note specifying that subdrain and backfill included in Class 20 excavation. See [PRCN 12.3(A)].

___ Barrier Footings: Note specifying that end section excavation is backfilled with special backfill. See [PRCN 12.3(B)].

___ Backwall reconstruction consolidation note included. ~~E461/M461. See [MM 199].~~ See [LRFD BDM 11.5.2] note E461/M461.

13. BARRIER RAIL

13.1 New Construction

___ Electric conduit shown. See [LRFD BDM 5.8.1.2.1].

___ Use 2" (51 mm) or 3" (76 mm) conduit as appropriate. See [LRFD BDM 5.8.1.2.1].

___ Remember special 3'-8 (1120 mm) rail for UP RR bridges.

___ UP RR bridges, assume 10:1 transition for barrier rail, as taller rail is required.

___ UP RR bridges, do not add fence (splashboard) unless UP RR says that we must.

___ For bridges with super elevations >2%, level the low side of the rail and keep high side of the rail perpendicular to the deck slab (i.e. on same superelevation) for "Jersey and F type" rails only. Details should be drawn accordingly.

___ For aesthetic barrier rail check details with Kimball Olson.

___ Class D concrete is not allowed – appropriate barrier rail notes are included. See [LRFD BDM 5.8.1.2.6].

___ Interstate mainline bridges detail TL-5 railing. See [LRFD BDM 5.8.1.2.1].

14. EXPANSION DEVICE

14.1 General

___ "Or approved equivalent" indicated in table of approved devices.

___ Latest designation for glands and extrusions shown.

___ For skew >30 deg. only Watson Bowman and D.S. Brown glands listed.

___ Non-weathering steel galvanized finger joints are preferred.

14.2 Repair/Retrofit

___ Extrusion field splice detail included.

15. SUBDRAIN/SLOPE PROTECTION DETAILS

15.1 Subdrain Details

___ Show subdrain bent around wingwall footings.

16. LIGHTING DETAILS

___ Standard sheet modified to reflect the work to be performed to include:
- Elimination of details for conduits not provided (underdeck, sign, etc.)
- Modification of elevation and plan views to reflect abutment type
- Elimination of light pole bases and expansion fitting details if not used.

___ Sheet to show elevation view of conduit along bridge.

___ When installing light pole conduit to multiple bases along the bridge, 1" (25 mm) conduit is shown coming into pole base from both directions along bridge in plan view of pole base.

___ For bridges in urban areas or interchanges lighting requirements coordinated with Office of Traffic and Safety and District.

17. AESTHETICS

___ Deck drain standard detail sheets 1054/M1054 used for bridges including aesthetic details.

18. APPROACH SIDEWALK

____ For bridges with sidewalks the sidewalk approach slab detail sheet is included.

19. ROADWAY PLANS

___ Erosion Control, including seeding and mulching, bid items (ALL projects) - do not include as incidental items.

___ Traffic control bid items (all projects where required by traffic control plan).

___ Traffic control plan current and acceptable to Office of Design.

___ PPP current, consistent with grading plan and acceptable to Office of Design.

___ Check that approach roadway plans are either in the bridge plans (preferred) or paving plans. If downdrag is encountered at the abutments the approach roadway details are to be included in the paving plans.

REFERENCE ABBREVIATIONS

BDM – Bridge Design Manual

MM – Methods Memo

PRCN – Plan Review Checklist Notes

CADD M – CADD Memo